Amendments to the Claims

Claims 24, 35, 37, 46-47, and 105-106 have been amended without any intention of disclaiming equivalents thereof. Claims 33-34 and 44-45 have been cancelled without prejudice to their subsequent reintroduction into this application or their introduction into a related application. New claims 107-116 have been added. The following list of claims replaces all prior versions and lists of claims in the application.

~~Listing of Claims~~:

1-23. (Canceled)

24. (Currently Amended) An *in vitro* method of increasing reaction selectivity among a plurality of reactants in a nucleic acid-templated synthesis to produce, without the assistance of a ribosome, a reaction product that is not a nucleic acid, the method comprising the steps of:

(a) providing (i) a template associated with a capturable moiety and comprising a first reactive unit associated with a first oligonucleotide comprising a predetermined codon sequence, (ii) a first transfer unit comprising a second reactive unit associated with a second oligonucleotide comprising an anti-codon sequence capable of annealing to said codon sequence, and (iii) a second transfer unit comprising a third reactive unit different from said second reactive unit associated with a third oligonucleotide without an anti-codon sequence capable of annealing to said codon sequence, wherein said second reactive unit and said third reactive unit are capable of reacting independently with said first reactive unit and said second reactive unit and said third reactive unit are capable or reacting with one another; and

(b) mixing said template, said first transfer unit and said second transfer unit under conditions to permit annealing of said second oligonucleotide of said first transfer unit to said first oligonucleotide of said template thereby to enhance covalent bond formation between said second reactive unit and said first reactive unit to produce the reaction product relative to covalent bond formation between said third reactive unit and said first reactive unit.

25. (Canceled)

26. (Original) The method of claim 24, wherein said first transfer unit is associated with a capturable moiety.

27. (Original) The method of claim 24, wherein said second transfer unit is associated with a capturable moiety.

28. (Previously Presented) The method of claim 24, 26, or 27, wherein said capturable moiety is selected from the group consisting of biotin, avidin and streptavidin.

29. (Original) The method of claim 28, further comprising the step of capturing said capturable moiety.

30. (Original) The method of claim 24, wherein said first reactive unit is covalently attached to said first oligonucleotide.

31. (Original) The method of claim 24, wherein said second reactive unit is covalently attached to said second oligonucleotide.

32. (Original) The method of claim 24, wherein said third reactive unit is covalently attached to said third oligonucleotide.

33-34. (Canceled)

35. (Currently Amended) The method of ~~claim 34~~ claim 24, wherein the reaction between said second reactive unit and said third reactive unit are incompatible with their respective reactions with said first reactive unit.

36. (Original) The method of claim 24, comprising providing a plurality of transfer units.

37. (Currently Amended) An *in vitro* method of increasing reaction selectivity among a plurality of reactants in a nucleic acid-templated synthesis to produce, without the assistance of a ribosome, a reaction product that is not a nucleic acid, the method comprising the steps of:

(a) providing (i) a template associated with a capturable moiety and comprising a first oligonucleotide comprising first and second codon sequences, (ii) a first transfer unit comprising a first reactive unit associated with a second oligonucleotide comprising a first anti-codon sequence capable of annealing to said first codon sequence, (iii) a second transfer unit comprising a second reactive unit associated with a third oligonucleotide comprising a second anti-codon sequence capable of annealing to said second codon sequence, and (iv) a third transfer unit comprising a third reactive unit associated with a fourth oligonucleotide sequence without an anti-codon sequence capable of annealing to said first codon sequence or said second codon sequence, wherein said third reactive unit is capable of reacting with said first reactive unit and said second reactive unit; and

(b) mixing said template, said first transfer unit, said second transfer unit and said third transfer unit under conditions to permit annealing of said first anti-codon sequence to said first codon sequence and said second anti-codon sequence to said second codon sequence thereby to enhance covalent bond formation between said first reactive unit and said second reactive unit to produce the reaction product relative to covalent bond formation between said third reactive unit and said first reactive unit or between said third reactive unit and said second reactive unit.

38. (Canceled)

39. (Previously Presented) The method of claim 37, wherein said capturable moiety is selected from the group consisting of biotin, avidin and streptavidin.

40. (Previously Presented) The method of claim 37, wherein said capturable moiety is a reaction product resulting from a reaction between said first reactive unit and said second reactive unit when said first transfer unit and said second transfer unit are annealed to said template.

41. (Original) The method of claim 37, wherein said first reactive unit is covalently attached to said second oligonucleotide.

42. (Original) The method of claim 37, wherein said second reactive unit is covalently attached to said third oligonucleotide.

43. (Original) The method of claim 37, wherein said third reactive unit is covalently attached to said fourth oligonucleotide.

44-45. (Cancelled)

46. (Currently Amended) The method of claim ~~44 or 45~~ 37, wherein the reaction between said third reactive unit and said first reactive unit is incompatible with the reaction between said first reactive unit and said second reactive unit.

47. (Currently Amended) The method of claim ~~44 or 45~~ 37, wherein the reaction between said third reactive unit and said second reactive unit is incompatible with the reaction between said first reactive unit and said second reactive unit.

48. (Original) The method of claim 37, wherein said covalent bond formation between said first reactive unit and said second reactive unit is via a regioselective distance dependent reaction.

49-103. (Canceled)

104. (Previously Presented) The method of claim 24, further comprising:

providing a second template comprising a fourth reactive unit associated with a fourth oligonucleotide comprising a second predetermined codon sequence, different from said predetermined codon sequence of said first oligonucleotide, wherein said second predetermined codon sequence is capable of annealing with said third oligonucleotide; and

mixing said second template with said first transfer unit, said second transfer unit, and said template comprising said first reactive unit associated with said first oligonucleotide under conditions to permit

annealing of said second oligonucleotide of said first transfer unit to said first oligonucleotide of said template and, in the same solution,

annealing of said third oligonucleotide of said second transfer unit to said fourth oligonucleotide of said second template, thereby to induce covalent bond formation both between said second reactive unit and said first reactive unit and between said fourth reactive unit and said third reactive unit.

105. (Currently Amended) An *in vitro* method of increasing reaction selectivity among a plurality of reactants in a nucleic acid-templated synthesis to produce, without the assistance of the ribosome, a reaction product that is not a nucleic acid, the method comprising the steps of:

(a) providing (i) a template comprising a first reactive unit associated with a first oligonucleotide comprising a predetermined codon sequence, (ii) a first transfer unit comprising a second reactive unit associated with a second oligonucleotide comprising an anti-codon sequence capable of annealing to said codon sequence, and (iii) a second transfer unit comprising a third reactive unit different from said second reactive unit associated with a third oligonucleotide without an anti-codon sequence capable of annealing to said codon sequence; and

(b) mixing said template, said first transfer unit and said second transfer unit under conditions to permit annealing of said second oligonucleotide of said first transfer unit to said first oligonucleotide of said template thereby to enhance covalent bond formation between said second reactive unit and said first reactive unit to produce the reaction product relative to covalent bond formation between said third reactive unit and said first reactive unit[[;]],

wherein said second reactive unit and said third reactive unit are capable of reacting with one another and the reaction between said second reactive unit and said third reactive unit is incompatible with the reaction between said second reactive unit and said first reactive unit.

106. (Currently Amended) An *in vitro* method of increasing reaction selectivity among a plurality of reactants in a nucleic acid-templated synthesis to produce, without the assistance of the ribosome, a reaction product that is not a nucleic acid, the method comprising the steps of:

(a) providing (i) a template comprising a first oligonucleotide comprising first and second codon sequences, (ii) a first transfer unit comprising a first reactive unit associated with a second oligonucleotide comprising a first anti-codon sequence capable of annealing to said first codon sequence, (iii) a second transfer unit comprising a second reactive unit associated with a third oligonucleotide comprising a second anti-codon sequence capable of annealing to said second codon sequence, and (iv) a third transfer unit comprising a third reactive unit different from said second reactive unit associated with a fourth oligonucleotide sequence without an anti-codon sequence capable of annealing to said first codon sequence or said second codon sequence; and

(b) mixing said template, said first transfer unit, said second transfer unit and said third transfer unit under conditions to permit annealing of said first anti-codon sequence to said first codon sequence and said second anti-codon sequence to said second codon sequence thereby to enhance covalent bond formation between said first reactive unit and said second reactive unit to produce the reaction product relative to covalent bond formation between said third reactive unit and said first reactive unit or between said third reactive unit and said second reactive unit[[;]],

wherein said third reactive unit is capable of reacting with said second reactive unit and the reaction between said third reactive unit and said second reactive unit is incompatible with the reaction between said first reactive unit and said second reactive unit.

107. (New) An *in vitro* method of increasing reaction selectivity among a plurality of reactants in a nucleic acid-templated synthesis to produce, without the assistance of the ribosome, a reaction product that is not a nucleic acid, the method comprising the steps of:

(a) providing (i) a template associated with a capturable moiety and comprising a first reactive unit covalently attached to a first oligonucleotide comprising a predetermined codon sequence, (ii) a first transfer unit comprising a second reactive unit associated with a second oligonucleotide comprising an anti-codon sequence capable of annealing to said codon sequence, and (iii) a second transfer unit comprising a third reactive unit different from said second reactive unit associated with a third oligonucleotide without an anti-codon sequence capable of annealing to said codon sequence; and

(b) mixing said template, said first transfer unit and said second transfer unit under conditions to permit annealing of said second oligonucleotide of said first transfer unit to said first oligonucleotide of said template thereby to enhance covalent bond formation between said second reactive unit and said first reactive unit to produce the reaction product relative to covalent bond formation between said third reactive unit and said first reactive unit,

wherein the reaction between said second reactive unit and said third reactive unit are incompatible with at least one of their reactions with said first reactive unit.

108. (New) The method of claim 107, wherein said first transfer unit is associated with a capturable moiety.

109. (New) The method of claim 107, wherein said second transfer unit is associated with a capturable moiety.

110. (New) The method of claim 107, 108, or 109, wherein said capturable moiety is selected from the group consisting of biotin, avidin and streptavidin.

111. (New) The method of claim 110, further comprising the step of capturing said capturable moiety.

112. (New) The method of claim 107, wherein said second reactive unit is covalently attached to said second oligonucleotide.

113. (New) The method of claim 107, wherein said third reactive unit is covalently attached to said third oligonucleotide.

114. (New) The method of claim 107, wherein said second reactive unit and said third reactive unit are capable of reacting independently with said first reactive unit.

115. (New) The method of claim 107, comprising providing a plurality of transfer units.

116. (New) The method of claim 107, further comprising:

providing a second template comprising a fourth reactive unit associated with a fourth oligonucleotide comprising a second predetermined codon sequence, different from said predetermined codon sequence of said first oligonucleotide, wherein said second predetermined codon sequence is capable of annealing with said third oligonucleotide; and

mixing said second template with said first transfer unit, said second transfer unit, and said template comprising said first reactive unit associated with said first oligonucleotide under conditions to permit

annealing of said second oligonucleotide of said first transfer unit to said first oligonucleotide of said template and, in the same solution,

annealing of said third oligonucleotide of said second transfer unit to said fourth oligonucleotide of said second template, thereby to induce covalent bond formation both between said second reactive unit and said first reactive unit and between said fourth reactive unit and said third reactive unit.